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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,254

04/21/2005

Chris Speirs

CH02 0033 US

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10/14/2009

NXP, B.V.

NXP INTELLECTUAL PROPERTY & LICENSING

M/S41-SJ

1109 MCKAY DRIVE

SAN JOSE, CA 95131

EXAMINER

MCCOMMAS, STUART S

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

10/14/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/532,254		SPEIRS, CHRIS	
	<b>Examiner</b>		<b>Art Unit</b>	
	Stuart McCommas		2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,5 and 7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-5, 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/27/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (United States Patent 6,907,314), hereinafter referenced as Negishi, in view of Liang (WO 01/54108 A1), hereinafter referenced as Liang, and further in view of Okuzono et al. (United States Patent Application Publication 2001/0043178), hereinafter referenced as Okuzono.

Regarding claim 1, Negishi discloses a display device comprising:

a plurality of pixels arranged in an array having n rows and m columns (figure 4),  
each of said pixels comprising a switching element having a gate (figure 4);

a plurality of control lines each connected to the gates of a corresponding row of said pixels and a plurality of data lines, each connected to the switching elements of a corresponding column of said pixels (figure 4);

a row driver circuit (10) that scans the  $n$  rows by means of a row voltage applied to said gate of said switching element (figure 4; figure 8);

a column driver circuit that controls the  $m$  columns by applying a column voltage to the data lines, said column voltage corresponding to image data of the pixels of selected row to be displayed (column 10 lines 34-51; figure 4).

However Negishi fails to disclose draining one of said control lines down to a given reference voltage, storing the drained charge as a stored charge, and charging another of said control lines to a given scan voltage using the stored charge, wherein the row driver circuit is arranged to drain said control lines by an intermediate draining of a charge from a selected one of the control lines down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines, said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time  $T$  relative to said intermediate training, and wherein said row driver circuit is arranged to perform said charging by an intermediate charging, beginning at a time not earlier than  $T$ , of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage.

In a similar field of invention Liang discloses draining one of said control lines down to a given reference voltage ( $V_{to}$ ), storing the drained charge as a stored charge, and charging another of said control lines to a given scan voltage using the stored charge (page 10 lines 25-31; page 11 lines 1-19), wherein the row driver circuit is arranged to drain said control lines by an intermediate draining ( $t_0$ - $t_1$ ) of a charge from a selected one of the control lines down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines ( $t_1$ - $t_3$ ), said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time  $T$  relative to said intermediate training (page 10 lines 25-31; page 11 lines 1-19; figure 5), and wherein said row driver circuit is arranged to perform said charging by an intermediate charging (figure 5), of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage disclosed in page 4 lines 1-33 and in page 5 lines 1-5 and in page 10 lines 25-31 and in page 11 lines 1-19 and exhibited in figure 1 and in figure 3 and in figure 5.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Negishi with Liang by specifically providing draining one of said control lines down to a given reference voltage, storing the drained charge as a stored charge, and charging another of said control lines to a given scan voltage using the stored charge, wherein the row driver circuit is arranged to drain said control lines by an intermediate draining of a charge from a selected one of the control lines

Art Unit: 2629

down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines, said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time T relative to said intermediate training, and wherein said row driver circuit is arranged to perform said charging by an intermediate charging, of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage for the purpose of providing a display that saves power by using charge sharing (page 4 lines 13-20).

In a similar field of invention Okuzono discloses that after a time T when a first line is finished scanning, charging by an intermediate charging, beginning at a time not earlier than T, of said another selected one of the control lines to said intermediate voltage level, and then finally charging said another selected one of the control lines to said scan voltage (paragraphs 57-76; figure 3; figure 5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Negishi with Okuzono by specifically providing charging by an intermediate charging, beginning at a time not earlier than T, of said another selected one of the control lines to said intermediate voltage level, and then finally charging said another selected one of the control lines to said scan voltage for the purpose of providing a display that waits for the discharge of a previous line before charging the subsequent line to improve the quality of the display (paragraph 28).

Regarding claim 2, Negishi, Liang and Okuzono, the combination discloses

Art Unit: 2629

everything as applied above, further Liang discloses wherein the row driver is arranged to perform the intermediate draining as a staged intermediate draining (figure 5), comprising a first intermediate draining of a charge from the selected one of the control lines down to a first intermediate voltage level, and a storing of the drained charge as a first stored charge, followed by second intermediate draining of a charge from the selected one of the control lines down to a second intermediate voltage level, and a storing of the drained charge as a second stored charge (page 10 lines 7-31; page 11 lines 1-13; figure 5), and wherein the row driver is arranged to perform the intermediate charging as a successive intermediate charging (figure 5), comprising a first intermediate charging of the selected another of the control lines using the first stored charge, followed by a second intermediate charging of the selected another of the control lines using the second stored charge disclosed in page 4 lines 9-19 and in page 10 lines 7-31 and in page 11 lines 1-13 and exhibited in figure 3 and in figure 5.

Regarding claim 4, Negishi and Liang, the combination discloses everything as applied above (see claim 1), further Liang discloses wherein the column voltage ranges up to a maximum column voltage and said maximum column voltage is the intermediate voltage level disclosed in page 8 lines 21-33 and in page 17 lines 15-25 and exhibited in figure 2 and in figure 5.

Regarding claim 5, Negishi, Liang and Okuzono, the combination discloses everything as applied above, further Liang discloses that the intermediate row voltage is half of the scan voltage disclosed in page 4 lines 13-19 and exhibited in figure 2 and in figure 5.

Regarding claim 7, claim 7 is interpreted and thus rejected for the reasons set forth above in the rejection of claims 1 and 2. Claims 1 and 2 describe an apparatus and claim 7 describes a method for implementing that apparatus. Thus claim 7 is rejected.

***Response to Arguments***

4. Applicant's arguments have been fully considered but they are believed to be answered by and therefore moot in view of the new grounds of rejection.

**Conclusion**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571)272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stuart McCommas  
Patent Examiner  
Art Unit 2629

SSM

***/Alexander Eisen/***

***Supervisory Patent Examiner, Art Unit 2629***